

ENGINEERING DIRECTIVES AND STANDARDS

Volume : III Effective Date : 09/25/2008
Chapter : 1 Revision Date :
Section : 1 Subject : **CONSTRUCTABILITY / BIDDABILITY REVIEW**
Directive : 32

1. PURPOSE:

This directive is hereby established to create a uniform policy for the constructability and biddability review of construction plans and proposals.

2. SCOPE:

This directive covers all District, Headquarters, and Consultant designed and prepared project plans and proposals.

3. FORMS:

Two forms have been developed to perform constructability and biddability reviews (attachments 1 & 2). These forms can also be found on the Intranet (*Project Development/Design Programs and Documents/Constructability Review*). One form applies to Pavement Preservation and Minor Overlays, and the other is used for all other projects. The proper form is to be completed for each project according to the procedures listed below when performing constructability and biddability reviews.

4. PROCEDURE:**All Projects**

Upon completion of the preliminary design, the Designer/Project Manager will complete one of the two forms listed above in accordance with the type of project and the instructions on the form.

General Projects

The Project Manager will then forward the plans to the Project Engineer, District Area Engineer and the HQ Construction Section with a copy of the completed form from Design. **The Project Engineer must then complete the form under Plan-in-Hand (PIH) and return to the Designer/Project Manager before a Plan-in-Hand (PIH) can be scheduled.** This form will then be used at the PIH to review and discuss the project. The Designer/Project Manager will then complete the design and resubmit the plans at Advance Check Print (ACP) with copies of the earlier completed forms. The District will perform a review of the ACP to verify all PIH notes were addressed, and to again check the constructability of the project. Comments noted shall be placed on the form and returned to the Designer/Project Manager. The form will again be sent to the District with the proposal and final plans to perform a biddability review.

Pavement Preservation and Minor Overlays

The Project Manager will forward the plans to the Project Engineer, District Area Engineer and the HQ Construction Section with a copy of the completed form from Design. **The Project Engineer must complete the form under Final Construction review.** The form will then be returned to the Project Manager for completion of the proposal.

5. OTHER ISSUANCES AFFECTED:

All other directives, memoranda, or instructions issued heretofore in conflict with this directive are hereby rescinded.

6. EFFECTIVE DATE:

This directive will be effective immediately upon receipt.

WILLIAM H. TEMPLE
CHIEF ENGINEER

Attachment 1

Plan Constructability/Biddability Review

PAVEMENT PRESEVATION AND MINOR OVERLAYS

PAVEMENT PRESERVATION AND MINOR OVERLAYS

PLAN / CONSTRUCTABILITY / BIDDABILITY REVIEW

Instructions

Purpose:

- To provide information to assist in producing quality plans.
- To provide a history of information that is easily accessible.
- To provide questions that would stimulate discussion of potentially problematic areas.
- To provide questions that will stimulate checking for all details and items required to complete the project.
- To provide aid during design for QA/QC

Instructions for completing the form

- The preliminary portion of the form shall be filled out by district design and signed by ADA of Engineering and copy submitted with the preliminary plans.
- Final Plan portion shall be filled out and signed by the Project Engineer and original submitted with the final plans. It is encouraged that the Area Engineer and the Project Engineer both review the plans.
- If answer to the question is in blue box (or lightly shaded if in black and white), a comment is **NOT** required.
- Most questions are designed that a “NO” answer will require comments on what is missing or needed.
- Most questions are designed that a “YES” answer means the plans meet the project needs or a follow up question is required.
- If comment is lengthy, show reference number on notes page for easy reference.
- Pavement Preservation Project Managers will ensure all comments are addressed and copy all reviewers.
- Each review is considered complete when all comments are addressed
- If question is answered N/A, question is not applicable to project.

**PAVEMENT PRESERVATION AND MINOR OVERLAYS
PLAN / CONSTRUCTABILITY / BIDDABILITY REVIEW**

State Project No. _____ Route No. _____

F.A.P. No. _____ Parish _____

Project Name _____ District _____

Name: _____

Date of Site Visit: _____

Description	PRELIM Design		FINAL Const		N/A	COMMENTS	
	Y	N	Y	N		Comment	Response
I. TITLE SHEET							
1. Are limits shown on Title Sheet in agreement with summary sheets?							
2. Are project limit exceptions noted? (RR, Bridge, etc)							
3. Are all applicable standards plans noted?							
4. Is the traffic data current and does it reflect actual conditions?							
5. For multiple projects, are all project numbers shown?							
II. TYPICAL SECTION SHEETS							
1. Is this a "Functional" Overlay?							
1a. If no, is it a "Structural" Overlay?							
2. Is the District in agreement with the proposed pavement type?							
3. Does typical section match design from Pavement Engineer?							

Description	PRELIM Design		FINAL Const		N/A	COMMENTS	
	Y	N	Y	N		Comment	Response
4. If a turn lane is being considered does the typical section fit within existing right-of-way?							
5. Is the subgrade soil survey included in plan?							
6. For asphalt pavement, are the design criteria shown? (ESALs)							
7. Is the existing typical section shown?							
8. If transitions at bridges or begin and end project are required, are details included?							
9. Is laboratory information included for existing roadway?							
10. Are limits of cold planing shown?							
11. Are striping and new lane widths shown?							
12. Will project drain properly during construction?							
13. Are underdrains included in the plans?							
14. Are Design Exceptions required/noted?							
15. Is earthwork/base course construction required?							
15a. If so, is the method of construction applicable?							
16. Are station limits shown?							
17. Are all transitions shown?							
III. SUMMARY SHEETS							
A. EARTHWORK							
1. Is method of payment for earthwork / borrow satisfactory?							
B. DRAINAGE							
1. Is review of plans by the Hydraulics Section required?							
2. Will existing ditch cleaning be required?							
2a. If yes, are the limits and pay items included?							
3. Is there identification and adequacy of all drainage items and quantities?							
4. Is there a method to connect new and existing drainage structures?							

Description	PRELIM Design		FINAL Const		N/A	COMMENTS	
	Y	N	Y	N		Comment	Response
5. If drainage structures are being required, is method of backfilling shown?							
6. Is bedding item included?							
7. If metal pipe is allowed, is pH and resistivity information included in plans?							
C. EROSION CONTROL							
1. Have sufficient temporary erosion control items been included?							
2. Are permanent erosion control items required?							
2a. If yes, list types							
D. MISCELLANEOUS							
3. For items designated for removal, is method of payment included?							
4. Are there any salvageable materials defined?							
4a. If yes, has location for hauling been defined?							
5. Is traffic maintenance aggregate required?							
5a. If yes, How much?							
6. Is the amount of contractor retained cold planed asphalt defined?							
7. If amount of contractor retained cold planed asphalt is <75% of total RAP quantity, has approval been obtained?							
8. Is an item for saw cutting required for asphaltic concrete pavement patching?							
9. Is an item for saw cutting included for removal of concrete drives?							

Description	PRELIM Design		FINAL Const		N/A	COMMENTS	
	Y	N	Y	N		Comment	Response
10. Are exceptions shown and properly depicted in tables? (RR, Bridges, etc.)							
11. Are work elements identified clearly, even those formally noted as 'no direct pay', and all corresponding pay items included with adequate quantities to construct project?							
12. Do pay items conform to current "Schedule of Pay Items"/Site Manager?							
13. Have specialty Items been given appropriate numbers compliant with Site Manager and Trns*port?							
14. Is a project site laboratory or project site laboratory (equipped) required? Please list type.							
15. Do loop detectors exist?							
15a. If yes, will existing loop detectors be destroyed by construction?							
15b. If loop detectors are being replaced, are all pay items included (i.e. conduit, junction boxes, conduit, etc.)?							
15c. Has Traffic Section requested cameras?							
16. Are there notes and/or items covering pay for traffic control items?							
IV. GEOMETRIC DETAILS							
1. Have all areas where improvements to the alignment are possible been addressed?							
2. Is required information on geometric sheets (e.g. curve data, centerline, etc.)							
3. Are required superelevation corrections on plans?							
4. Will changes in the superelevation affect driveway or property access?							

Description	PRELIM Design		FINAL Const		N/A	COMMENTS	
	Y	N	Y	N		Comment	Response
V. SEQUENCE OF CONSTRUCTION							
1. Is through traffic is to be maintained							
1a. If no, is detour routes provided?							
2. Has someone from HQ Construction reviewed the plans?							
2a. If so, who?							
3. Are traffic operations requirements properly addressed? (i.e., signing, pavement markings, TC Details, etc.)							
4. Are there adequate provisions if signs or road markers are to be removed?							
5. Are there adequate accommodations for intersecting and crossing traffic?							
6. Have pedestrian and bicycle accommodations been addressed?							
7. Have restrictions (e.g. lane closure, general construction or peak-hour restrictions in urban areas, schools, festivals, harvesting, RS 48:279 – Night time work) been identified?							
8. Are items for temporary safety device requirements and provisions included (i.e. guard rail, attenuators, barrier rail, etc.)?							
9. Are there conflicts between existing and new surfacing being used to maintain traffic (i.e. drop-offs >2", guardrail, etc.)							
10. If existing parking is affected, have accommodations been made for temporary and permanent parking?							
VI. GENERAL							
1. Is the project constructible w/ typical construction equipment? (ex: tandem trucks, mtv's, etc...)							
2. Are appropriate general notes and special provisions shown for construction?							

Description	PRELIM Design		FINAL Const		N/A	COMMENTS	
	Y	N	Y	N		Comment	Response
3. Are all applicable standard/special details included in plans?							
4. If finish grade elevation is increased, will adjustments be needed to the following?							
- intersections							
- curbs							
- catch basins							
- manholes							
- bridge railing/guard rail							
- shoulders							
- Other							
5. If overlaying a bridge, has Bridge Design been consulted?							
6. Have low cost enhancement items been considered? (Rumble strips/stripes, additional signing, safety end treatments, etc.)							
7. Are plans clear and legible?							
8. Do specifications support the plans?							
9. Do current site conditions conform to those represented in plans? (i.e. patching quantities, drives, etc...)							
10. Have ADA requirements been addressed?							
11. Have environmental safeguards on dust control, erosion, noise, and disposal of wastes been addressed?							
12. Is there sufficient horizontal or vertical clearance within the work zone? (overhead utilities, guy wires, tree canopies, power poles, bridges, etc....)							
13. Has the Project Engineer received the permits? (COE, NOI, RR, etc.)							

Description	PRELIM Design		FINAL Const		N/A	COMMENTS	
	Y	N	Y	N		Comment	Response
14. Have all encroachments been addressed?							
15. Are permit requirements addressed?							
16. Is the amount of construction time in contract sufficient?							
17. Is an assembly period recommended?							
17a. If yes, How many days							
18. If turn lanes are added,							
18a. Are utility adjustments required?							
18b. Any right-of-way issues need to be addressed?							
18c. Hydraulic review needed?							
18d. Geometric review needed?							
18e. Geometric Detail Sheets or Plan/Profile Sheets needed?							
18f. Traffic Engineering review needed?							
18g. Bridge review needed?							
18h. Geotech review needed?							
19. Did you create any S-item wording?							

ACP review by Project Engineer

Date

Constructability / Biddability review by

Date

NOTES PAGE

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Attachment 2

Plan Constructability/Biddability Review

LARGE PROJECTS

PLAN / CONSTRUCTABILITY / BIDDABILITY REVIEW

Purpose and Instructions

Purpose:

- To provide information to assist in producing quality plans.
- To provide a history of information that is easily accessible.
- To provide questions to stimulate discussion of potentially problematic areas.
- To provide questions to stimulate checking details and items required to complete the project.
- To provide aid during design for QA/QC
- To provide primary discussion for the plan-in-hand meeting

Instructions for completing the form

- The Design Review portion of the form shall be filled out by the designer during design and prior to PIH submittals.
- The form may be filled out by any district person (ADA, Area Engineer, Lab Engineer, etc.) but the Project Engineer must sign the signature sheet that he concurs with the comments. It is encouraged that the Area Engineer and the Project Engineer both review the plans.
- The Project Engineer and any District personnel designated by the Project Engineer are responsible for reviewing the plans and filling out the review form. The Project Engineer and all reviewers must sign the signature sheet at the back of the form. The Area Engineer is also encouraged to review the plans.
- If answer to the question is in blue box (or lightly shaded if in black and white), a comment is **NOT** required.
- Most questions are designed that a “NO” answer will require comments on what is missing or needed.
- Most questions are designed that a “YES” answer means the plans meet the project needs or a follow up question is required.
- Comments should be shown by reference number on notes page for easy reference. (Example III-2)
- Constructability and Plan-in-Hand questions shall be answered prior to the Plan-in-Hand. The plans should provide enough detail to construct the work required.
- ACP and PS&E / Biddability submittal shall have copies of the completed PIH review attached. If missing contact the Project Manager for a copy. The plans and specifications should provide the details and pay items to bid the project.
- Project Managers are required to respond to all comments and copy all reviewers.
- Each review is considered complete when all comments are addressed
- If question is answered N/A, question is not applicable to project.

- 95% Final Plan reviews (ACP) shall have the completed 95% Preliminary Plan (PIH) review attached. It may be helpful to reference the PIH plan set during the ACP review.

- Comments may be required for certain checklist items. Comments are to be written at the back of the form along with reference numbers for the plan section and checklist item number.

- Project managers shall collect all review forms, insert responses to any comments, and copy all reviewers.

APPLICABLE SECTION FOR REVIEW

State Project No. _____ Route No. _____ **P/H –Constructability**
(95% Prelim)
F.A.P. No. _____ Parish _____ **Advance Check Print**
(95% Final)
Project Name: _____

<u>Yes</u>	<u>N/A</u>	<u>#</u>	<u>Description</u>
		I.	TYPICAL SECTION SHEETS
		II.	SUMMARY SHEETS
		III.	PLAN-AND-PROFILE SHEETS
		IV.	DRAINAGE PLAN-AND-PROFILE SHEETS
		V.	SIGNAL PLANS
		VI.	GEOMETRIC DETAILS
		VII.	SUGGESTED SEQUENCE OF CONSTRUCTION
		VIII.	GENERAL
		IX.	UTILITIES
		X.	STRUCTURES

PLAN-IN-HAND INSPECTION REPORT AND CONSTRUCTABILITY / BIDDABILITY REVIEW

[illegible]

Description	Design Review/ Comments			Construction							
				Plan-in-Hand Constructability			ACP		PS&E Biddability		
	N/A	Yes	No	N/A	Yes	No	Yes	No	Yes	No	
8a. If yes, are items adequately covered?											
8b. If no, is one required? Why?											
9. Are work elements identified clearly with all corresponding pay items included with adequate quantities to construct project? (i.e. summary tables)											
10. Is there any work under this project designated as “no direct pay”?											
10a. If yes, is this work clearly linked to a specific pay item that can be quantified in the contractor’s bid item list?											
11. Are permanent erosion and pollution control items included?											
III. PLAN-AND-PROFILE SHEETS											
1. Is adequate right-of-way provided for relocation of utilities?											
2. Is there space between the R/W line and drainage structure to allow for utility relocation?											
3. Are right-of-way and property line dimensions shown on plans?											
4. Will any right-of-entry agreements be required?											
4a. If yes, is this satisfactory?											
4b. If yes, who will secure it?											
5. Does existing horizontal or vertical clearance allow for construction?											
6. Are all the utility owners with contact numbers listed?											
7. Are the existing utility locations marked in the plans?											
8. Are the utility conflict boxes and their location noted on the plans?											
9. Will overlay affect the intersection, gutters, or curbs drainage?											
9a. If yes, are adjustments required?											
10. Are retaining walls required?											
10a. If yes, are details provided for the walls?											
11. Are all oil or gas wells on the project shown on the plans?											
12. Are encroachments on the right-of-way being addressed?											
13. Are existing improvements within 50' of required right-of-way shown on the plans?											
14. Is there any potential hazardous waste site / UST?											
15. Have construction or drainage servitudes been shown?											
16. Are the limits of clearing, grubbing, and landscaping shown?											
17. Can any significant tree be allowed to remain?											
a. If yes are those to remain been identified?											
18. Are there apparent conflicts between plans and specifications?											
19. Are the benchmark data, required elevations, and curve data on the plans?											

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[illegible]

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Description	Design Review/ Comments			Construction							
				Plan-in-Hand Constructability			ACP		PS&E Biddability		
	N/A	Yes	No	N/A	Yes	No	Yes	No	Yes	No	
utility owners) agreed to allow them to remain in-place?											
3. Has responsible party for utility relocation been identified with provisions?											
4. Are there overhead utilities, guy wires, etc. in potential conflict with operations and access of large equipment?											
5. Are there gas lines above other utilities?											
6. Are there conflicts between gravity and force sewer mains and construction?											
6a. If yes for force main, is there a utility agreement for relocation?											
6b. If yes for gravity sewer, are plans included for relocation of sewer?											
7. Are there utility conflicts with drainage?											
8. If project is preceded by clearing and grubbing contract, have utilities been relocated?											
9. If there are pipelines, are they shown in the profile?											
10. If there is a need for a specified utility corridor?											
10a. If yes, is it shown?											
11. Should an integrated utility relocation plan (scheduling and final location of utilities) be included in the construction plans?											
11a. If yes, is the integrated utility relocation plan included in the construction plans?											
X. STRUCTURES											
GENERAL NOTES, INDEX, AND BRIDGE SUMMARY OF QUANTITIES											
GENERAL NOTES & INDEX											
1. Is information complete, accurate, clear and free from multiple interpretations?											
2. Have all environmental commitments been identified?											
3. Has the disposition of salvageable materials been addressed?											
4. Are utility permit requests addressed?											
BRIDGE SUMMARY OF QUANTITIES											
1. Are all necessary items shown and properly footnoted?											
2. Are all quantities and units adequately shown?											
3. Have all items been brought forward properly to the Master Summary of Quantities?											
4. If the project is composed of multiple project numbers or funding sources have the quantities been subdivided?											
5. Have all non FHWA participating items been identified?											
GENERAL BRIDGE PLANS											
1. Are all geometric controls shown and consistent with other sheets?											
2. Does each plan sheet provide a clear layout and configuration of the intended structure (matchlines, span/bent numbering, joint types, etc.)?											
3. Does the roadway and bridge interface agree?											
4. Has all guard rail installation information been shown?											

Description	Design Review/ Comments			Construction							
				Plan-in-Hand Constructability			ACP		PS&E Biddability		
	N/A	Yes	No	N/A	Yes	No	Yes	No	Yes	No	
5. Are vertical clearances shown (navigable waterways, roads under bridge, etc.)?											
6. Is deck drainage type specified (drain holes ,barrier slots, etc)?											
HYDRAULIC DATA											
1. Is the hydraulic table shown?											
2. If river gauges are present, has the removal and disposition of these gauges been addressed?											
3. Has predicted scour, scour protection and abutment protection been adequately addressed?											
4. Have design water surface elevations been shown?											
5. Do all water surface elevations reference the project survey datum?											
6. Have any channel changes been addressed in the plans?											
GEOTECHNICAL INFORMATION (If not addressed on foundation plan)											
1. Have all borings, CPT, test piles, and settlement plates been shown on the plans?											
2. Has all temporary shoring for phased construction been covered adequately?											
3. Is Pile Batter indicated (if not shown on bent details)?											
CONSTRUCTION CONFLICTS											
1. Is the existing structure shown?											
2. Are all utilities to remain shown?											
SUPERELEVATION DIAGRAMS (Superelevation implementation plans should always be included when superelevation transition occurs on the bridge. The bridge superelevation will control the design.)											
1. Is the superelevation implementation plan clear and concise?											
2. Is the transition from roadway to bridge clearly conveyed?											
FOUNDATION PLAN (A foundation plan may be used when geometry is complex, additional information is required for layout of foundation or conflicts with foundation construction need to be identified)											
1. Has all temporary shoring for any phased construction been covered adequately?											
2. Are all conflicts identified in the plans?											
3. Are all utilities to remain shown?											
4. Is the pile batter shown (if not shown elsewhere)?											
5. Have all overhead or underground obstructions or conflicts that may impede pile driving operations been addressed?											
6. Will pile driving interfere with maintenance of traffic?											
7. Will a pre / post construction site survey for such structures be needed?											

[illegible]

[illegible]

Description	Design Review/ Comments			Construction							
				Plan-in-Hand Constructability			ACP		PS&E Biddability		
	N/A	Yes	No	N/A	Yes	No	Yes	No	Yes	No	
2. Is the contract type and time period sufficient?											
3. Is there a treatment for the removed steel if it has red lead?											

Plan-in-hand inspection report prepared by

Date

Project Engineer

Date

ACP review by

Date

Project Engineer

Date

Constructability / Biddability review by

Date

Project Engineer

Date

NOTES PAGE

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